

**INTERDISCIPLINARY TEAM ANALYSIS RECORD CHECKLIST**

**Project Title:** Daneros Mine Plan Modification

**NEPA Log Number:** DOI-BLM-UT-Y020-2016-0001-EA

**File/Serial Number:** UTU-74631

**Project Leader:** Ted McDougall

**DESCRIPTION OF ALTERNATIVES, INCLUDING the PROPOSED ACTION**

This environmental assessment (EA) analyzes two Alternatives: Alternative A - Proposed Action and; Alternative B - No Action. Under the Proposed Action Alternative, Energy Fuels' Daneros Mine Plan of Operations (MPO) would be modified by expanding facilities at the Daneros portal area; constructing new facilities at two additional historic mine sites (Bullseye and South Portal areas); and constructing additional vent holes and associated access roads to support future mining. Under the No Action Alternative, the proposed Mine Plan of Operations Modification (MPOM) would not be approved. Authorized mining operations under the approved MPO would continue. The environmental impacts associated with the existing Daneros MPO were previously analyzed and are documented in Environmental Assessment (EA UT-090-07-43). Therefore, the following Interdisciplinary Team Record Checklist applies only to the Proposed Action Alternative. The No Action Alternative is included in the EA to provide a baseline for analysis and to show the consequences of not meeting the need for action. No issues or unresolved conflicts concerning alternative uses of the resources in the proposed project area (PPA) were identified that would necessitate consideration of other alternatives.

**Alternative A – Proposed Action:** The proposed MPOM includes the following at the Daneros Mine (Daneros, Bullseye, and South portal areas):

- Expansion of the Development Rock Area (DRA) at the Daneros Portal area.
- Rehabilitation of the existing Bullseye Portal.
- Construction of the South Portal
- Construction of DRAs at the Bullseye and South portal areas.
- Construction of ore stockpile areas at the Bullseye and South portal areas.
- Construction of topsoil and inert material stockpile areas.
- Installation of drainage control structures.
- Installation of mine infrastructure systems.
- Installation of an office/shop complex at the South Portal area.
- Installation of up to 8 additional vent holes.

Operation and maintenance of these facilities would occur throughout the life of the project (approximately 20 years). The facilities would be constructed in a phased manner with mine operations resuming at the Daneros Portal and construction starting at the Bullseye Portal. As mining continues, the South Portal area would be developed while much of the area at the Daneros and Bullseye portals would be reclaimed including the DRAs. All disturbed areas would be reclaimed at the conclusion of operations. Total ore production for life of mine would increase from 100,000 tons over 7 years to 500,000 tons over 20 years. Total mine disturbance would increase from 4.5 acres to 46.3 acres.

**Alternative B – No Action:** Energy Fuels would continue to operate its Daneros Mine in accordance with the approved MPO. Approved facilities at the Daneros Mine include: two portals (a main portal and a vent portal), a mine yard area, topsoil and inert material stockpile areas, DRA, two mine ventilation boreholes, an office/shop area and water well. The MPO also allows for drilling 22 development holes. Total approved project disturbance is 4.5 acres. No ore processing occurs at the site. Ore is transported by truck on existing county and State roads to Energy Fuels' White Mesa Mill near Blanding, Utah.

The Proposed Action summarizes detailed information found in the proposed MPOM submitted by Energy Fuels. Some key information is included as appendices to the EA; the MPOM is incorporated by reference. The Proposed Action also incorporates the requirements of all applicable federal, state and local laws, regulations and permits as specified in Section 1.6 of the EA and all applicable management actions prescribed in the BLM Land Use Plan, including stipulations. The Proposed Action includes design and control measures to reduce the impacts to sensitive resources. These built-in measures include public and worker protection from radiation exposure, stormwater pollution prevention measures, weed control, proper waste disposal, fugitive dust abatement, topsoil and material handling, approved revegetation and reclamation methods and site monitoring. These measures are incorporated as an integral part of the Proposed Action.

For a more detailed description of the Proposed Action and No Action Alternatives refer to Chapter 2 of the EA.

**Determination of STAFF: (Choose one of the following abbreviated options for the left column)**

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present, with potential for significant impact analyzed in detail in the EA; or identified in a DNA as requiring further analysis

Determination	Resource	Rationale for Determination	Signature	Date
<b>CRITICAL ELEMENTS</b>				
PI	Air Quality	The issue is compliance with Federal and State emission thresholds for designated gaseous and particulate air pollutants. Emission sources include: particulate matter (dust) from construction and mining activity, including transportation; exhaust emissions from vehicles, diesel generators and mine ventilation, including carbon monoxide, nitrogen oxides and; radon gas from waste rock, ore pads and mine ventilation. Regional haze or other potential effects of emissions on visibility in any Class I area is also an issue. Air quality is analyzed in detail in the EA.	C. Giffen	1/3/2014
NP	Areas of Critical Environmental Concern	The BLM, Monticello Field Office designated seven (7) Areas of Critical Environmental Concern (ACEC) in its Resource Management Plan (RMP) approved on November 17, 2008. The proposed project is not within or adjacent to any of the lands designated an ACEC. In addition, the proposed project is not within any of the lands that BLM considered for designation and analyzed in detail under any of the five alternatives in the Monticello PRMP/FEIS (BLM 2008b:pg. 4-484, table 4.133 and maps 50 thru 53).	T. McDougall	1/15/2014
NI	Cultural Resources	<p>Seven cultural resources inventories were conducted for the Daneros Mine project between 2008 and 2013. A total of 212 acres were inventoried covering the Area of Potential Effect (APE), including buffer areas around all project components and access roads.</p> <p>No prehistoric sites were found. Six non-eligible and one eligible National Register of Historic Places (NRHP) historic sites were found in the APE. The BLM disagreed with the recommendation of the cultural resources contractor that the Spook Mine was not eligible for listing in the NRHP. The one eligible site is the remains of the historic Spook Mine dating 1954 to the early 1960s. Provided that the site is avoided or a mitigation plan developed and implemented with the State Historic Preservation Office and the BLM, no historic properties would be affected by the proposed project. The Cultural Resource Inventory reports for the Daneros Mine project are on file with the BLM Monticello Field Office and the Utah State Historic Preservation Office.</p> <p>Daneros ore would be processed at the White Mesa Mill. The mill operates under current Radioactive Materials License (No. UT1900479) issued by the Division of Radiation</p>	D. Simonis	1/21/14

Determination	Resource	Rationale for Determination	Signature	Date
		Control (DRC). The mill license incorporates the August 20, 1979 Memorandum of Agreement (MOA) between the Utah State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation (ACHP), the Nuclear Regulatory Commission (NRC) and Energy Fuels Nuclear Inc. The MOA, as amended on May 3, 1983, contains adequate conditions to prevent potential indirect impacts to cultural resources from the milling of Daneros ore at the White Mesa Mill.		
		Executive Order (EO) 12898 requires identifying and addressing disproportionately high and adverse human health and environmental impacts of federal programs, policies, and activities on minority or low income populations.		
NI	Environmental Justice	<p>Approximately 56 percent of the population in San Juan County is Native American. Despite the population data that indicates non-minority status within San Juan County, Native Americans are considered a minority group for the purposes of analyzing and ensuring environmental justice. The Native American population in San Juan County has the highest poverty level at 48%, or 3,809 individuals. The environmental analysis documented in the FEIS prepared for the Monticello Field Office RMP, which this EA is tiered to, concluded that no management actions proposed under any of the alternatives or the Proposed Plan would cause disproportionate adverse impacts to minority or low income populations within the planning area (BLM 2008b:4-421).</p> <p>The project location is in a remote area of San Juan County. The nearest communities (Blanding, Bluff and Mexican Hat) are 40-50 miles away from the Daneros Mine. Daneros ore would be processed at the White Mesa Mill. The mill is located approximately five miles north of the White Mesa Ute Reservation. The small Ute community of White Mesa has a population of approximately 350. Based on analysis documented in chapter 4 of the EA, the proposed MPOM would have no appreciable direct impacts on the human environment and the processing of Daneros ore at the White Mesa Mill would have negligible indirect environmental impacts. Employment at the proposed mine and at the White Mesa Mill would provide equal opportunities to low income and minority populations. Therefore, there would be no disproportionately high and adverse human health or environmental effects on minority or low-income populations.</p>	T. McDougall	6/7/16
NP	Farmlands (Prime or Unique)	The Monticello Field Office does not have any designated prime and unique farmlands administered by the BLM (MFO FRMP/FEIS, pg 4-7).	Jed Carling	12/04/13
NI	Floodplains	There are no active floodplains associated with perennial streams in the immediate mine area. The area does support ephemeral (dry) washes that only flow with runoff from precipitation events. Stormwater runoff would be managed in conformance with the UDOGM and the UDEQ stormwater requirements; and controlled with ditches, berms, or other flood control structures, as outlined in the MPOM Storm Water Pollution Prevention Plan (Attachment G) and Drainage Report (Attachment C). The proposed	Jed Carling	04/11/16

Determination	Resource	Rationale for Determination	Signature	Date
		<p>mine facilities and structures are designed for the 100-year, 24 hour storm event and are sited outside the 100-year floodplain. The proposed action is not a “federally funded project” nor is it a “critical action” defined by EO 11988, as amended by EO 13690. Therefore, the proposed 100-year base flood elevation design criteria for the project meets the minimum federal standards for floodplain management and is consistent with the guidelines for implementing EO 11988 and EO 13690 (FEMA, 2015).</p> <p>The Proposed Action and the Plan of Operations includes provisions to avoid adverse effects and incompatible development in areas subject to flooding, including: reduce the risk of flood loss; minimize the impact of floods on human safety, health, and welfare; and restore/preserve the natural and beneficial values served by floodplains. The applicant has received a stream alteration permit from the State of Utah, Division of Water Resources. For the reasons listed above (e.g. incorporated mitigation measures in the plan) floodplains are not affected to a degree that detailed analysis is required.</p>		
NI	Invasive, Non-native Species	<p>There are no known State of Utah listed noxious weeds that occur in the vicinity of the Proposed Action other than Salt Cedar (Tamarisk), as indicated by the Vegetation Cover Survey (Attachment F of the MPOM). In Utah, Salt Cedar is listed as a Class C Weed, which is found extensively in the state and is thought to be beyond control, with containment focused on small infestations. Noted invasive, non-native plant species from the survey in the mine area include Russian thistle, halogeton (saltlover), and cheatgrass. These invasive species occurred in isolated localities and were not negatively influencing the overall structural / functional components of the native vegetative community.</p> <p>The MFO does not anticipate any changes in the proportion of controllable spreading agents to contribute in the establishment and spread of invasive plants as a result of the proposed action. This is due to the arid environment, limited presence of invasive / noxious weeds in the area, and incorporated mitigation measures designed to limited weed infestations, as outlined in the MPOM Noxious Weed Monitoring Plan (Section 5.4), Monitoring Plan (Section 5), and Reclamation Plan (Section 4). Also, the applicant submitted a noxious weed and invasive plant control plan to prevent and control the spread of noxious weeds and invasive plants during and following construction, operations, and reclamation (MPOM – Attachment P). This plan states if problematic weed infestations should occur that the applicant would confer with the BLM and the County regarding appropriate control measures to implement.</p> <p>The proposed alternatives do not pose an appreciable threat to the further establishment and spread of noxious weeds and invasive species for reasons listed above. Thereby, invasive species and noxious weeds are not impacted to a degree that detailed analysis is required.</p>	Jed Carling	12/04/13

Determination	Resource	Rationale for Determination	Signature	Date
NI	Native American Religious Concerns	Consultations were conducted with 15 tribal entities. Comments were received from the Hopi Tribe and Navajo Nation. As a result of the comments received from the Hopi and Navajo, the BLM conducted additional consultations with those two tribes in order to identify specific places of traditional and cultural importance which may be affected by the proposed action, and to address other concerns expressed by those tribes. The BLM has concluded that the proposed action would not affect sites or places of traditional or cultural importance to the Hopi or Navajo. BLMs consultation efforts and conclusions are described in Appendix D and Chapter 5 of the EA.	D. Simonis	1/21/14
NP	Threatened, Endangered or Candidate Plant Species	SWCA Environmental Consultants (SWCA) compiled a list of federally listed and candidate species, species listed by the State of Utah, and BLM special management species with the potential to occur in San Juan County, Utah (USFWS 2007, UCDC 2008).  After consultation with BLM, SWCA conducted a site survey of threatened, endangered or candidate species in May of 2008 and again in 2012 to determine if the species identified by BLM are potentially located in the PPA. The results of the survey indicated there are no federally listed or BLM special status plant species within the PPA (MPOM, Appendix L).	M. Scott	1/6/14
NI	Threatened, Endangered or Candidate Animal Species	Based on surveys and habitat assessment conducted by SWCA in May 2008 and 2012 (MPOM, Appendix L), it was determined that none of the ten federally listed species have the potential to occur within the PPA. The habitat is not suitable for any of the listed species and is not within any designated critical habitat for Mexican spotted owls or the four endangered fish species.	M. Scott	1/6/14
NI	Wastes (hazardous or solid)	Solid wastes that would be generated as a result of the mining activity would include general household wastes (e.g. paper products, glass, plastics, metals and sewage), scrap iron, and overburden. Household type solid wastes would be placed in industrial type roll off trash containers and sewage would be contained in portable sanitation facilities and a septic system (including leach field) at the South Portal area. The regulations at 40 CFR 261.4(b)(7) states in part, that overburden from the mining of uranium ore is not classified as a hazardous waste. The waste rock piles would be reclaimed under an approved reclamation plan (MPOM, Section 4) submitted to the BLM.  Hazardous materials that would likely be used at the site include fuels, lubricants, antifreeze, lead acid batteries and explosives. Concrete secondary containments would be constructed for all fuel tanks and bulk oil storage to prevent uncontrolled releases and seepage into the soils. These secondary containments would contain more than 110% of the largest container plus water from a 100 year 24 hour storm event. A Spill Prevention Control and Countermeasure Plan (SPCC) has been prepared (MPOM, Appendix I) and would be maintained at the site as required by 40 CFR 112. Explosives would be stored	J. Brown	2/3/14

Determination	Resource	Rationale for Determination	Signature	Date
		<p>in accordance with the Mining Safety and Health Administrations (MSHA) regulations and requirements. The other hazardous materials would be secured in a locked shop. The shop floors would be designed to keep any spilled liquids in the building. A written Hazardous Communication Plan (Hazcom Plan) covering the requirements for training, labeling, listing of chemical inventory at the site, disposal procedures and, Material Safety Data Sheets (MSDS) would be on site. Hazardous wastes that would be generated consist of used oils, spent solvents, lead acid batteries and any spills of any of the hazardous materials used at the site. The used oils and batteries would be recycled and would therefore not be included in the hazardous wastes determination. Since Energy Fuels would produce less than 100 kg (approximately 220 pounds) of hazardous waste each month they would be considered a Conditionally Exempt Small Quantity Generator (CESQG) under the regulations at 40 CFR 261.5. The BLM would be immediately notified of any spills or releases and take immediate action to contain and clean up such spills. No extremely hazardous substances, as defined at 40 CFR 355 would be used, produced, stored, transported, or disposed of in association with the proposed action.</p> <p>Given the designed waste management control and prevention measures to be utilized on site in combination with contingency planning, there would be no impacts associated with hazardous or solid wastes. Therefore, hazardous or solid wastes do not require detailed analysis in this EA.</p>		
PI	Water Quality (surface/ground)	<p>The issue is compliance with Utah State water quality standards and potential for offsite migration of metals or contaminants that may impact or degrade surface or ground water quality, including potential acid or other deleterious leachates. Potential sources of pollutants include: development rock and ore piles and particulate in mine exhaust with elevated levels of heavy metals and/or radionuclides including radium, thorium, and uranium; storage areas for oils, lubricants, fuel, blasting agents and other chemicals, and; shop or other work areas where these materials are used. Water quality is analyzed in detail in the EA.</p>	M. Scott	1/6/14
NI	Wetlands/Riparian Zones	<p>In general, the area of the proposal lacks appreciable surface and/or sub-surface waters for the establishment and maintenance of extensive wetlands/riparian zones. The Vegetation Inventory (MPOM, Attachment F) surveyed plants present in the project area, which only includes upland plants and not any riparian obligated species.</p> <p>The Bullseye spring is located in the area that supports a small isolated riparian zone at the immediate site. This spring and associated riparian plants (e.g. cattails and tamarisks-nonnative) are derived from a shallow perched aquifer above the mine workings. As analyzed in the Daneros Mine Project Environmental Assessment (EA-UT-090-07-43), indirect impacts from mine operations are not expected to affect the spring's water availability; thus existing riparian community would continue to be supported by the spring.</p>	Jed Carling	12/04/13

Determination	Resource	Rationale for Determination	Signature	Date
		<p>Within the RMP, riparian zones are stipulated as No Surface Occupancy (NSO). Thereby, no surface-disturbing activities are allowed within 100 meters of riparian areas along perennial streams and springs, with the exceptions of: (a) there are no practical alternatives, (b) impacts could be fully mitigated, or (c) the action is designed to enhance riparian resource values (RMP Appendix B, pg. 3). The proposed action does not include any surface disturbing activities within NSO areas for riparian.</p> <p>Overall, there are no affects to wetlands/riparian zones to a degree that detailed analysis is required for reasons listed above.</p>		
NP	Wild and Scenic Rivers	The BLM, Monticello Field Office determined in its Resource Management Plan (RMP) dated November 17, 2008, that four (4) river segments are suitable for designation into the National Wild and Scenic River System (BLM 2008a:table 4.135 and map 55). There are no rivers or river segments designated as Wild and Scenic Rivers within or adjacent to the PPA and none of the river segments which were found to be suitable for possible designation as a Wild and Scenic River are within the PPA. Therefore, there would be no impact.	Brian Quigley	1/28/15
NP	Wilderness	There are no lands under study by Congress (Wilderness Study Area status [WSA]) for potential wilderness designation or designated wilderness areas (WA) within or in proximity of the PPA. Therefore, there would be no impact.	Brian Quigley	1/28/15
<b>OTHER RESOURCES / CONCERNS</b>				
NI	Rangeland Health Standards and Guidelines	Utah Standards for Rangeland Health are individually addressed as separate resources for determination of impacts in this checklist. Thereby, there are no affects to overall Rangeland Health Standards and Guidelines to a degree that detailed analysis is required because they are taken into consideration by the individual Standard / Resource in this document.	Jed Carling	12/04/13
		The project occurs within a portion of the winter range on the White Canyon grazing allotment. This allotment encompasses 226,299 acres, provides nearly a year-long grazing season for a total of 456 permitted cattle, and has 5,616 active Animal Unit Months (AUMs) allocated for livestock.		
NI	Livestock Grazing	The area of proposed activity is located in a Semi-desert Stony Loam, Talus Slope and Upland Shallow Loam ecological sites, which naturally lack appreciable forage production for livestock due to the high content of stone, shallow soils, steep slopes, and arid environment (see Attachment F-Vegetative Ground Cover Surveys in the MPOM). These conditions negate long-term forage losses associated with the Proposed Action to approximately 2 AUMs due to a minor reduction of forage availability, which is	Jed Carling	04/07/15



negligible for the livestock grazing operation overall. Also, the individual Proposed Action would have minimal impacts on the authorized grazing use because the amount of new surface disturbance (41.8 acre) is nominal in regards to the scale of the allotment (226,299 acres).

Soil and vegetation disturbances (41.8 acres) would be offset in the long-term by successfully reclaiming disturbed areas with a seed mix that is suited for the site, as specified in section 4.6.3 of MPOM. Therefore, a minimal forage source for livestock would occur upon successful re-vegetation.

Proposed mining activities that occur during the grazing period may potentially have a minor influence to livestock practices, such as a modification in livestock distribution, increased vehicular use, possible injury/loss to livestock due to vehicular collisions, and impediments to livestock grazing and movement. Cattle guards would be installed as necessary so that gates would not be left open.

Direct contact risk to cattle from incidental ingestion or inhalation of toxic metals in exposed ore and development rock piles would be minor. The reclamation plan eliminates the long-term risk by covering the exposed development rock with sufficient inert material and topsoil to prevent direct contact. During active mine operations cattle would likely spend little time in the operational area due to disturbances from ongoing human activity. Development rock would be exposed on site during interim periods when the mine is not operational. Use of the development rock areas by cattle during these interim periods would be infrequent and transitory because the total area of the three development rock piles is small (approximately 12 acres) compared to the total acres available in the White Canyon grazing allotment (226,299 acres) and because there would be no vegetation/forage on the barren development rock piles to attract cattle. For these reasons direct contact risk during interim periods is expected to be minimal.

Prior to mine reclamation, surface run-off of occasional storm water from the three exposed development rock piles would collect in small sediment ponds. The sediment ponds would impound water only for short periods because of the arid environment and high rate of evaporation in the area. It is possible that cattle could drink from the ponds after a storm event but this use is expected to be minimal because of other water sources that would also be available at such times, including: natural depressions, roadside ditches, and larger more favorable livestock reservoirs.

As shown in the EA, Appendix E, Section 5.2 and Table 5.3, the SPLP tests for the waste rock samples indicate that this material is relatively inert with very low potential leachate concentrations for most constituents. Arsenic was the only constituent that was detected to any extent. The SPLP test yielded an arsenic concentration of 0.15 mg/L, which exceeds the state numeric criteria for agricultural use (0.1 mg/L). However, the state agricultural water quality standard is designed to be protective of chronic year-round consumption so limited consumption or transitory use of water from the sediment ponds by cattle is not expected to be harmful (BLM, 2015).

		<p>As part of the original decision in the Daneros Mine Project (EA UT-090-07-43, Attachment B), the applicant will monitor flow rates at the Bullseye Spring and Well range improvements until reclamation is completed. It was concluded in the EA that the mine operations are not expected to affect the existing water rights and/or flow at this spring and well. However, if flow rates are diminished as a result of mining activities, the mine shall be required to mitigate potential damage to the livestock operations through a replacement well or other water replacement measures.</p> <p>Overall, there are no impacts to livestock grazing on the White Canyon Allotment to a degree that detailed analysis is required for reasons listed above.</p>		
NI	Woodlands	<p>Piñon-juniper woodlands are present in the vicinity of the Proposed Action in the Upland Shallow Loam ecological site. No impacts to woodlands would occur because of the limited nature of the Proposed Action (46.3 acres), of which mostly occur outside of woodland habitat, in relation to the vastness of available woodlands. Harvesting potential of woodland products would also not be impacted because of the isolation of the site, limited scale, difficult access, and greater woodland gathering opportunities elsewhere.</p>	M. Scott	1/6/14
NI	Fire/Fuels	<p>The area of activity outlined in the proposal falls within the San Juan Basin fire management unit. Pinyon/Juniper in the area is classified as fire regime 2 (0-35 year fire frequency with &gt;75% of overstory vegetation replaced) condition class 3 (fire regime substantially altered from historical range, risk of losing key ecosystem components is high). As detailed above in "Woodlands" the area is comprised of very sparse vegetation except for on the mesa tops where Pinyon/Juniper forests reside. Limited drilling and vent hole operations may take place on the mesa tops. The Pinyon/Juniper and associated sparse understory located on these mesas are sufficient to carry fire and under the right conditions, but due to the limited disturbance and the nature of the infrastructure being installed, fire would be a temporary inconvenience. A safety buffer should be maintained between combustible fuels and at-risk facilities. Access to the mesa top would be improved during these operations enhancing emergency access which would ultimately aid in fire detection and suppression/management activities. Further analysis will not be required in this EA.</p>	P. Plemons	6/05/13
NI	Vegetation including Special Status Plant Species other than FWS candidate or listed species	<p>The primary ecological sites in the mine area are Talus Slope (Blackbrush-Shadscale), Semi-desert Stony Loam (Shadscale), and Upland Shallow Loam (Pinyon-Utah Juniper) ecological sites. These sites are associated with soils that are a rock outcrop and badland complexes, which naturally lacks appreciable vegetative production due to the high content of stone, shallow soils, steep slopes, and arid environment. As shown in the Vegetative Ground Cover Surveys (Attachment F of the MPOM) the plant communities are primarily composed of shrublands (e.g. big sagebrush, Mormon tea, cactus, yucca, roundleaf buffaloberry, shadscale, broom snakeweed, fourwing saltbush, rubber rabbitbrush) and woodlands (e.g. pinyon and Utah juniper). These sites also have naturally limited herbaceous understories (e.g. alkali sacaton, bottlebrush squirreltail, galleta grass, and Indian ricegrass).</p> <p>The proposed mine expansion would disturb an additional 41.8 acres beyond the currently approved 4.5 acres, for a total of 46.3 acres of potential disturbance to</p>	Jed Carling	12/04/13

vegetative communities in these ecological sites. This area of the mine has been heavily disturbed by past mining operations. The area of disturbance is nominal in relation to the connected ecological sites (Semidesert Stony Loam-3,971 acres, Upland Shallow Loam-4,788 acres, and Talus Slope-1881 acres).

The MPOM includes a Reclamation Plan for disturbed areas (Section 4). This includes regrading and reshaping of disturbed areas, and reclamation of drill and vent holes, roads, mine portals, drainages, developed rock areas, and stockpiles. Topsoil analysis indicates the topsoil, which will be stockpiled at the site, is suitable for revegetation. This will be accomplished through soil material replacement, seed bed preparation, and seeding with a seed mix adapted for the site conditions, as specified in section 4.6.3 of the MPOM. Site conditions at the proposal area normally has hampered re-habilitation / re-vegetation efforts following a disturbance because of limited resources; thus potentially requiring repeated reclamation (seeding) and greater top soil levels.

Overall, impacts to vegetation would be negligible because of the lack of vegetative cover in its natural state, past disturbance activities, the scale of operation, and proposed mitigation efforts such as revegetation and stabilization of the site. Thereby, for reasons listed above, impacts are not to a degree that detailed analysis is required.

Old and new mine openings provide habitat for several species of bats known to inhabit the area. A bat survey was conducted in the existing mine opening in the fall of 2008. Surveys were conducted again in 2012 and no bats were detected. No bats were detected and there was no sign (guano, insect parts, or roosting stains) of bats using the existing mine opening. Since there are currently no bats in the existing mine, the new mine openings would be closed during times of cessation to prevent bats from entering, and reclamation would be done at the end of the project; no bat species would be affected by the project.

NI	Fish and Wildlife Including Special Status Species other than FWS candidate or listed species e.g. Migratory birds.	<p>Raptor surveys would be completed if surface disturbing activities begin between January 1st and September 31. If raptors are found after appropriate surveys are conducted, modification may be required. The management of raptors, including buffer sizes and timing restrictions would be developed according to the Best Management Practices for Raptors and Their Associated Habitats in Utah. This would ensure that nesting raptors would not be affected by the project.</p> <p>Other wildlife such as reptiles, migratory birds, mule deer, and small mammals (such as chipmunks and mice) may be seasonally attracted to the area in small numbers. The mine is designed for total containment of surface runoff from the mine disturbance, and no discharge to the dry washes is anticipated. Mine reclamation would occur when mining operations are concluded. This would protect the habitat surrounding the mine and continue to provide wildlife habitat in the future. Vehicular use would increase during mining operations and wildlife fatalities could also increase along the haul routes through collisions with haul trucks. Typically, haul-truck drivers would not take evasive action to avoid wildlife because that action could lead to an accident involving a turnover or collision with another vehicle (US DOE, 2007). However, any increase in collisions with</p>	M. Scott	1/6/14
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wildlife would not measurably impact wildlife populations because of the small number of these species that utilize the area. The noise generated by the proposed MPOM may cause local disturbance to wildlife in close proximity of work areas during the initial start-up of mine operations so timing restrictions would be applied to protect Desert bighorn sheep and raptors. Once operations are established, sound levels generated from the proposed action would be the same as the existing mine when operational.

The PPA is within designated crucial desert bighorn sheep habitat. This habitat is important for sheep year-round, but especially during the lambing and breeding seasons. The proposed mine expansion would disturb an additional 41.8 acres beyond the currently approved 4.5 acres, for a total of 46.3 acres of potential surface disturbance. Of the 380,000 acres of crucial habitat, the new 41.8 total acres of disturbance would result in less than 0.01 percent of disturbance in crucial habitat. The Proposed Action would not result in the permanent loss of desert bighorn sheep habitat. Surface disturbance would be reclaimed after mining operations are complete. Significant portions of this surface disturbance have been disturbed by previous mining operations. Major construction activities, especially the potential construction of 8 new vent holes in the project area, including the mesa top, would not be allowed during critical breeding and lambing times (April 1-June 15 and October 15-December 15) to reduce impacts to sheep. Analysis done in the previous EA UT-090-07-43, p.40-41 adequately analyzed the impacts to desert bighorns and stated, "in accordance with the MFO RMP, the initiation of surface disturbing activities would be precluded during lambing and rutting seasons if determined that lambing or rutting activity is occurring in the area of proposed operations. This measure would effectively prevent disturbance to the sheep during these critical periods and avoid long-term impacts to the health of the bighorn sheep populations".

NI	Desert bighorn sheep	<p>Direct contact risk to wildlife, including bighorn sheep, from incidental ingestion or inhalation of toxic metals in exposed ore and development rock piles would be minor. The reclamation plan eliminates the long-term risk by covering the exposed development rock with sufficient inert material and topsoil to prevent direct contact. During active mine operations wildlife would likely spend little time in the operational area due to disturbances from ongoing human activity. Development rock would be exposed on site during interim periods when the mine is not operational. Use of the development rock areas by wildlife during these interim periods would be infrequent and transitory because the total area of the three development rock piles is small (approximately 12 acres) compared to the surrounding available habitat (380,000 acres of crucial bighorn sheep habitat) and because there would be limited available vegetation/forage or habitat on the barren development rock piles to attract wildlife (BLM, 2015). Surveys have documented little to no use of the mine area by bighorn sheep. For these reasons direct contact risk to bighorn sheep and other wildlife species during interim periods is expected to be minimal.</p> <p>Prior to mine reclamation, surface run-off of occasional storm water from the three exposed development rock piles would collect in small sediment ponds. The sediment ponds would impound water only for short periods because of the arid environment and high rate of evaporation in the area. It is possible that wildlife could drink from the</p>	M. Scott	4/8/2015
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ponds after a storm event but this use is expected to be minimal because of other water sources that would also be available at such times, including: natural depressions, roadside ditches, natural seeps/springs and larger livestock reservoirs. Bighorn sheep are more likely to drink from the developed guzzlers and natural seeps/springs in nearby areas with more suitable habitat.

As shown in the EA, Appendix E, Section 5.2 and Table 5.3, the SPLP tests for the waste rock samples indicate that this material is relatively inert with very low potential leachate concentrations for most constituents. Arsenic was the only constituent that was detected to any extent. The SPLP test yielded an arsenic concentration of 0.15 mg/L which exceeds the state numeric criteria for agricultural use (0.1 mg/L). However, the state agricultural water quality standard is designed to be protective of chronic year-round consumption so limited consumption or transitory use of water from the sediment ponds by wildlife is not expected to be harmful (BLM, 2015).

The area of the proposed action was included in the Soil Survey of San Juan County, Utah, Central Part, 1993. Soils at the mine portal areas where most of the surface disturbing activities will occur are primarily 64-Strych-Skos-Badland Complex and the 61-Skos – Rock outcrop complex. Soils within the vent hole area are 49-Rizno-Rock Outcrop Complex and 2-Badland Rock outcrop complex. These soils typically have limited vegetative cover and production due to their shallow nature, low to very low available water capacities, high content of stone, steep slopes, and arid environment. Therefore, there are high levels of bare ground and associated surface water run-off from rain and snow events.

The proposed action is in conformance with the Monticello Field Office RMP dated 2008. The RMP specifies a Fragile Soils/Slopes CSU (21% to 40%) and NSO (slopes greater than 40%) stipulation for surface disturbing activities. The proposed action meets the CSU stipulation because it contains an erosion control strategy and reclamation and site plan with a design acceptable to the BLM. The area specified for ventilation and drill holes and associated access roads contains slopes in excess of 40%. While unlikely, it is possible that some access road and vent hole development could be located on slopes in excess of 40%. This is still consistent with the RMP, Appendix B which states “An NSO stipulation cannot be applied to operations authorized under the mining laws without a withdrawal”. The proposed action estimates vent hole and associated access road development would disturb 12 acres within the roughly 2,000-acre vent hole area. Vent hole and access road development on slopes in excess of 40% would be subject to the CSU slopes stipulation.

The proposed mine expansion would disturb an additional 41.8 acres beyond the currently approved 4.5 acres, for a total of 46.3 acres of potential surface disturbance. Significant portions of this surface disturbance have been disturbed by previous mining operations. The Proposed Action includes design elements, or Best Management Practices (BMPs) that mitigate impacts to the soil resource. These BMPs include:

NI

Soils

C. Giffen

1/3/2014

1. Salvaging and re-vegetating topsoil to be used for reclamation activities
2. The preparation of a Storm Water Pollution Prevention Plan (SWPPP, Attachment G) that is based on the Drainage Report for the Daneros Mine (Attachment C). The Drainage Report and SWPPP are designed to divert all off site runoff water from entering onto mine portal areas; and to prevent all on site runoff water from flowing off-site
3. A Reclamation plan (Section 4) designed to restore disturbed areas including drill and vent holes, roads, mine portals, drainages, and developed rock areas to a stable vegetated soil surface when mine operations are complete.

The area of surface disturbance is not significant when compared to the overall area represented by these soil mapping units. The application of BMPs contained in the proposed action will adequately mitigate impacts to the soil resource from the proposed action. Soils will not be impacted to the degree that would require detailed analysis in the EA.

The PPA is open to recreational use but signs notify the public about the presence of the mine. The PPA is used occasionally by motorized recreationalists, mountain bikers and hikers, although recreational use in the area is limited. One designated route provides access up Bullseye Canyon and onto Wingate Mesa. The route (D0029) is a county-maintained road which traverses the proposed mine site. For public safety purposes, access on route D0029 would be restricted for the duration of mine operations. Safety signs and a gate have been placed on route D0029 at the entrance to the mine to allow access to authorized mine personnel only. Public access would be restored once mining operations are complete. Closure of route D0029 during mine operations would not preclude motorized recreational use on Wingate Mesa. During the 20-year mine operation, motorized vehicles would continue to be allowed access beyond the mine site and onto Wingate Mesa via route D5319.

NI

Recreation

Mining operations in Bullseye Canyon would not be visually intrusive for motorists because of the natural screening that the canyon setting provides. However, the South Portal area would be visible immediately along County road B258.

Brian Quigley

6/7/16

Impacts to recreationalists from noise generated by the proposed action would vary depending on location and distance from the mine operations. However, these impacts would likely be minor due to limited recreation use in the area and a lack of public expectation for solitude in proximity of the existing mine operation with a similar noise disturbance when operational. As discussed below, even the loudest noises from the operation (ie., aboveground ventilation fans and vehicle warning horns) at a half-mile, with attenuation, would be reduced to less than 50 dBA. For comparison, actual measured noise level for a pickup truck passing slowly at 50 feet is 75 dBA. Motorized recreationalists would be impacted least because the noise generated from the proposed action would be muffled by the noise of the ATV or OHV. The project area, including Wingate Mesa, is not within a BLM special designation area that is managed by BLM for

protection of solitude, such as: a BLM natural area, designated wilderness area or wilderness study area. Therefore, noise generated from operation of mining equipment is not inconsistent with the RMP management objectives for the area.

The proposed action would have no noise or visual impacts on recreational visitors at Natural Bridges National Monument. The mine area is eight miles west of the nearest border of the Monument boundary and is completely screened by natural, topographical barriers.

NI	Visual Resources	<p>The proposed facilities are located in an area designated as visual resource management (VRM) Class IV (BLM 2008a: map 71). The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. Past mining and exploration disturbances are prevalent in the area of the proposed project. The proposed mine facilities at the Bullseye and South Portal areas would be situated, in part, on old mine disturbances. Proposed mine facilities at the Daneros and Bullseye Portal areas would be largely concealed from public view because of their location in Bullseye Canyon. The canyon terrain screens much of these two project areas so they would not be visible from the primary access road in the area (county road B258-Radium King). However, the southern end of the proposed Bullseye development rock pile would be seen from county road B258 for a short interval where the road crosses Bullseye Canyon. The proposed facilities at the South Portal area would be situated in relatively flat-lying terrain adjacent to county road B258. These facilities would be in full view of the county road near the South Portal area and at various other vantage points along the road. The mine facilities would not be seen from Bridges National Monument or from highway 95 or highway 263 because of topographic screening.</p>	Brian Quigley	04/01/16
NI	Mineral Resources/Energy Production	<p>The proposal would be consistent with the objectives for VRM Class IV. Best management practices incorporated into the proposal such as dust abatement and painting mine facilities a color that corresponds to the natural setting would mitigate visual contrast during the 20-year mine operation. Proposed site reclamation would mitigate visual contrast over the long term. Mine lights would not be seen from Bridges National Monument. With exception of the immediate area along county road B258, lighting at the mine location would have minimal impact on night skies because of the mine's location and topographic relief which provides natural screening.</p> <p>The Daneros Mine project is located on the southwest shelf of the Paradox basin. Oil and gas resources in this area of the Paradox basin occur primarily in the Porous Carbonate Buildup and Fractured Interbed Plays within the Pennsylvanian Hermosa Group. These plays have a moderate potential for development in the area of the proposed project (BLM, 2008b). Currently, there is no oil and gas development or federal oil and gas leases in the PPA. The proposed uranium mine would not interfere with any future oil and gas development because of the relatively small mine size and the fact that the much deeper oil and gas targets would allow drilling and production activities to be sited away from the active mining operations, including underground mine workings.</p>	T. McDougall	12/06/13

		<p>The mine project is located within the White Canyon mining area. Uranium deposits in this area occur primarily within paleochannels of the Shinarump Member of the Chinle Formation. The proposed MPOM could potentially be of benefit to future uranium exploration and development in this area of San Juan County by increasing the knowledge and understanding of ore controls and geology of possibly similar deposits. The proposed extraction of 500,000 tons of uranium ore would yield approximately 3,000,000 lbs of U308 and constitute an irretrievable loss of the same.</p>		
		<p>Mine facilities and surface operations will disturb bedrock exposures in the Upper Triassic Monitor Butte Member of the Chinle Formation. The Chinle is one of the most heavily studied Mesozoic formations in the western United States and vertebrate fossils have been known from the unit for many years</p>		
NI	Paleontology	<p>A paleontological survey of the project area was conducted by the Museum of Western Colorado (Foster, 2013). The paleontological survey report recommends that the project be cleared to proceed with a condition that a paleontological monitor be present during any surface disturbing operations in bedrock exposures of the Chinle Formation. The proposed action includes a paleontological monitor as recommended.</p> <p>In the event of a discovery of vertebrate fossils during surface-disturbing operations, the mine operator would be required to temporarily stop work in the immediate vicinity of the discovery until a BLM paleontologist assesses the situation and determines appropriate action for mitigation.</p>	Rebecca Hunt-Foster	01/07/14
NI	Lands / Access	<p>The proposed mine project is located on public land administered by the BLM. Access to the PPA is via a year-round county maintained road (B258-Radium King) and two lesser county-maintained roads in Bullseye Canyon (D0029 and D5319). County roads D0029 and D5319 provide vehicle access onto Wingate Mesa. All three County roads are designated routes in the Monticello Field Office Travel Plan. Route D0029 traverses the Daneros Portal area and continues onto Wingate Mesa. Safety signs and a gate have been placed on route D0029 at the entrance to the mine to allow access to authorized mine personnel only. For public safety purposes, public access on County road D0029 would continue to be restricted for the 20-year duration of the proposed mining operations. Public access would be restored once mining operations are completed. Access to public lands on Wingate Mesa would continue to be allowed via County road D5319. County road D5319 would also be used by the proponent for authorized drilling operations and to access and maintain future mine vent holes. During the 20-year mine operation, the route onto Wingate Mesa would continue to be accessible to motorized vehicles. The Proposed Action would not require realty action and would not affect an existing FLPMA right-of-way.</p>	Chris Ransel	6/7/16
NI	Socioeconomics	<p>Development of the mine is expected to provide up to 40 jobs for surface preparation, underground development, mine production, and reclamation phases over an approximately 20 year period. It is likely that the full figure of 40 would be reached gradually as mine expansion proceeds. Mining, however, is a relatively small portion of the regional economy, with 6.6% of employment (266 jobs in 2012) in San Juan County in the mining sector (U.S. Bureau of Labor Statistics). The 40 additional jobs expected</p>	Bill Stevens	11/25/13



from the current project would represent an increase in mining employment in the County of approximately 15 per cent. Given that total employment in the County totaled 4025 jobs in 2012, the 40 job increase in the planning area's economy over the next 20 years is not significant. Additional employment may result from the fact that the mine's ore would be supplied to the White Mesa Mill, one of the largest non-government employers in San Juan County.

Because employment is expected to increase only nominally, no concomitant increase in population is expected. Mine employees may be lodged at Fry Canyon Lodge or they may live elsewhere and be bussed to the mine daily; therefore, no additional demands on housing or public services would result. There would be a negligible increase in sales tax revenue generated from use of the Fry Canyon Lodge and the parts and service sector. Overall, the proposed mine expansion is not expected to have an appreciable effect on socioeconomic factors such as employment, population, tax revenues or housing.

NP	BLM Natural Areas	The 2008 Monticello RMP carried forward five areas of non-WSA lands with Wilderness Characteristics for protection of their wilderness characteristics. These lands total 88,871 acres and are referred to in the RMP as "BLM Natural Areas" (Map 8 RMP). None of the five natural areas are present within or in proximity to the project area outlined in the proposed action and therefore no impacts would occur.	Brian Quigley	1/28/15
NI	Lands with Wilderness Characteristics	<p>The BLM inventoried and evaluated areas in the Monticello Field Office for wilderness characteristics as part of the 2008 RMP process. That evaluation process is documented in Appendix O of the Proposed RMP/FEIS, dated August 2008. The proposed project area includes lands that were determined by BLM to have wilderness characteristics. The proposed project would be partly within the Upper Red Canyon A unit. In its Record of Decision for the 2008 Monticello Field Office RMP, the BLM decided not to select these lands and bring them forward for "protection, preservation or maintenance of wilderness characteristics". The BLM decided that these lands would be made available to the public for other priority uses (RMP-ROD, pgs. 37-38).</p> <p>The BLM analyzed the potential impacts that locatable mineral development would have on non-WSA lands with wilderness characteristics. That analysis is documented in the Monticello Field Office Proposed RMP/Final EIS dated August 2008. As stated in that document, "...If new mining development occurs within these areas, direct loss of wilderness characteristics would be unavoidable due to surface-disturbing activities...and changes could occur that would impact lands with wilderness characteristics by removing vegetation, moving soils, and disrupting the natural landscape. It would also alter the setting needed to support primitive recreation activities and opportunities to find solitude for those non-WSA lands with wilderness characteristics where new mining activities occur..." (PRMP/FEIS, pg. 4-220).</p> <p>The Upper Red Canyon A unit consists of 24,918 acres of non-WSA lands with wilderness characteristics. The proposed mining operations would result in the direct loss of wilderness characteristics from an area totaling roughly 6.8 acres at the South</p>	Bill Stevens	1/7/14

portal area. In addition, it is reasonable to assume that one vent hole and associated access road totaling 1.5 acres could be sited within the Upper Red Canyon A unit near the South portal area. Therefore, approximately 8.3 acres of non-WSA lands with wilderness characteristics in the Upper Red Canyon A unit would be directly impaired by the proposed mining project.

This represents a very small percentage (0.03 percent) of non-WSA lands with wilderness characteristics within the Upper Red Canyon A unit that would be directly affected by the proposed action. The proposed project is situated just inside the boundary of the Upper Red Canyon A unit and is contiguous to pre-existing mining disturbances and a County class B road. The proposed mining project would not fragment the Upper Red Canyon A unit. The wilderness character of the vast majority of the unit would remain intact. Therefore, the potential impacts to non-WSA lands with wilderness characteristics would be nominal and do not warrant further analysis and documentation in this EA.

The human ear experiences sound as pressure on the ear. The sound pressure level is expressed in decibels (dB). A value of 0 dB corresponds to the approximate threshold of human hearing. Environmental sounds are measured with the A-weighted scale of a sound level meter. The A scale simulates the frequency response of the human ear by giving more weight to the middle frequency sounds and less to the low and high frequency sounds. A-weighted sound levels are designated as dBA. Typical background sound levels for remote undeveloped areas would be 25 dBA for nighttime average and 35 dBA for daytime average.

The sources of noise generated by the proposed project would include the aboveground ventilation fans, generators, and vehicle traffic and would be typical of most construction sites. In general, the backup alarms on the trucks would generate the loudest noise during loading, unloading and hauling which would be the same sound levels that are generated when the existing mine is operational. Most noise would be concentrated at the three portal areas and would be generated by equipment operating above ground at those sites. The portal areas would be located adjacent to existing county roads which are subject to occasional traffic noise. For example, actual measured noise level for a pickup truck passing slowly at 50 feet is 75 dBA. Aboveground ventilation fans dispersed throughout the project area would also be a source of noise. At Energy Fuels' La Sal Uranium Mine, ventilation fan noise levels were measured at 91.7 dBA at a distance of 10-feet away. At a half-mile, with attenuation, the noise level of a surface fan would be reduced to less than 50 dBA. The ventilation fans at the Daneros Mine would be similar to those used at the La Sal Mine.

San Juan County does not have a county-specific noise ordinance. There are no full or part time receptors (i.e., houses, schools, developed campgrounds, etc.) within 3 miles of the project area. If there were receptors within a half-mile, the noise generated by the mine operations would be within the typical sound limits established in noise regulations of other state and county regulatory authorities elsewhere in Utah and Colorado (Energy Fuels, 2015 - MPOM, Attachment Q)

NI

Noise Emission

T. McDougall

4/8/2015

		<p>The project area is not within a BLM special designation area that is managed by BLM for protection of solitude, such as; a BLM natural area, designated wilderness area or wilderness study area. The area is open to mineral development and recreational use so signs have been installed to notify the public about the presence of the mine. Natural Bridges National Monument is approximately eight miles northeast of the Daneros Mine but it is screened from noise emissions by Wingate Mesa and North, Middle and South Tables of the Sun.</p>		
PI	Human Health and Safety Concerns	<p>Mine employees and the public may be exposed to radon gas and gamma radiation during the period of active mining operations and also over the long term after site reclamation is complete. Mine ore and development rock may have the potential to generate acid or other deleterious leachates. Health risks associated with potential exposure to radiation and deleterious materials on site is an issue that is analyzed in greater detail in the EA.</p>	J. Brown	4/28/2015
		<p>Additionally, there is a safety issue associated with increased traffic on county road B258 (Radium King) and on State Highway 95, including ore haul trucks and other personnel and service vehicles. See the EA for further analysis.</p>	C. Giffen	4/28/2015
NI	Climate	<p>Climate change describes the variation in Earth's global and regional atmosphere over time. The rise in the Earth's average surface temperature is known as global warming. Scientists attribute the accelerating rate of global warming to human-made greenhouse gas (GHG) emissions. GHGs are any gas that absorbs infrared radiation in the atmosphere and forces the planet's average temperature to increase. Generally, recognized anthropogenic GHGs include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Carbon dioxide is the primary factor in climate change, with atmospheric concentrations increasing by about 40 percent since pre-industrial times (Intergovernmental Panel on Climate Change [IPCC] 2013). This increase occurs because man extracts fossil fuel from the earth and combusts it, thereby releasing carbon into the atmosphere that has been sequestered for millennia. Although plants and the oceans absorb carbon dioxide, the rate of anthropogenic generation exceeds nature's capacity for uptake. Atmospheric methane, a GHG about 20 times more potent than carbon dioxide, has doubled since 1750 (National Aeronautics and Space Administration [NASA] 2005). Methane is emitted by agriculture, deforestation, oil and gas production, organic decomposition (land fills), and industry.</p> <p>The current scientific theory is that the warming of the climate system is "unequivocal" and "continued greenhouse gas emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would very likely be larger than those observed during the 20th century" (IPCC, 2013). The National Climatic Data Center reports that, "Reflecting the long-term warming trend in the Earth's climate, U.S. and global annual temperatures are now approximately 1.0°F warmer than at the start of the 20th century, and the rate of warming has accelerated over the past 30 years, increasing globally since the mid-1970's at a rate approximately three times faster than the century-scale trend" (National Climatic Data Center 2007).</p>	Leonard Herr C. Giffen	07/30/2014

Greenhouse gas (GHG) emissions from the proposed project would be primarily carbon dioxide (CO<sub>2</sub>) resulting from fossil diesel fuel combustion and are estimated at 14,335 tons per year [approximately 0.014 teragrams (tg)/yr]. To place the Project GHG emissions in context, 2012 CO<sub>2</sub> emissions from the major coal-fired electric power plants in Utah equaled 28.2 teragrams (UGS, 2014). In addition, 0.014 tg/yr is approximately equivalent to 0.0002 percent of the total 2012 U.S. CO<sub>2</sub> equivalent (CO<sub>2</sub>e) emissions.

While the proposed action may contribute to the climate change phenomenon, any analysis of the specific effects of the proposed action on global climate would be speculative given the current state of the science. However, nuclear energy accounts for about 19 percent of the world's electricity generation and avoids the emission of about 2.1 billion tones of CO<sub>2</sub> every year (The European Atomic Forum, 2008). Nuclear energy is in no way free of carbon emissions but it is much better (from a purely carbon-equivalent emissions standpoint) than fossil fuel electricity generators such as coal, diesel, or natural gas. Based on lifecycle estimates for electricity generators, nuclear generators produce 66 gCO<sub>2</sub>/kWh compared to natural gas (443 gCO<sub>2</sub>/kWh), diesel (778 gCO<sub>2</sub>/kWh), and coal (1,000 gCO<sub>2</sub>/kWh) (Sovacool, 2008). The uranium ore extracted from the Daneros Mine would be milled to produce yellowcake which would then be upgraded for use in cleaner fuel technologies to generate electricity. The reduced CO<sub>2</sub> emissions from nuclear powered electricity generation may offset the CO<sub>2</sub> emissions from the mining and processing of Daneros ore and may result indirectly in a small reduction in global CO<sub>2</sub> emissions.

From a regulatory standpoint the project is considered a relatively minor source of air emissions. Project emissions of greenhouse gases (CO<sub>2</sub>) do not rise to the level that would require a detailed analysis in the EA.

**FINAL REVIEW:**

Reviewer Title	Signature	Date	Comments
NEPA / Environmental Coordinator	Brian T. Quigley	6/7/2016	
Authorized Officer	Donald K. Hoffheins	6/7/2016	

## References Cited

- Bureau of Land Management (BLM). 2008a. Record of Decision and Approved Resource Management Plan (ROD and RMP) Bureau of Land Management, Monticello Field Office. November 2008.
- . 2008b. The Monticello Field Office Proposed Resource Management Plan and Final Environmental Impact Statement (PRMP/FEIS). Bureau of Land Management, Utah State Office, Salt Lake City, Utah. Prepared by the Monticello Field Office, August 2008.
- . 2011. Decision Record, Finding of No Significant Impact, and Environmental Assessment (UT-090-07-43) for the Daneros Mine Project. Monticello Field Office. June 2011.———. 2015. Risk Assessment Review and BLM Recommendations Regarding Energy Fuels' Environmental Assessment Report for the Daneros Mine Plan Modification, December 2014. Bureau of Land Management, National Operations Center, Lakewood, Colorado. April 6, 2015.
- Energy Fuels Resources (USA) Inc. 2016. Plan of Operations Modification, Daneros Mine, San Juan County Utah, UTU-74631, January 2016.
- Federal Emergency Management Agency (FEMA). 2015. Guidelines for Implementing Executive Order 11988, Floodplain Management, and Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input, October 8, 2015.
- Foster, John R. Paleontological Survey of the Daneros Mine Area in San Juan County, Utah, Museum of Western Colorado; Prepared for Energy Fuels Resources, 2013
- Hasleby, John. 2009. President and Director, Utah Energy Corporation. Written communication, February 27, 2009.
- Intergovernmental Panel on Climate Change 2013. Climate Change 2013, The Physical Science Basis: Working Group I Contribution to the Fifth Assessment Report of the IPCC. Available at: [http://www.climatechange2013.org/images/uploads/WGI\\_AR5\\_SPM\\_brochure.pdf](http://www.climatechange2013.org/images/uploads/WGI_AR5_SPM_brochure.pdf). Accessed January 2014.
- National Aeronautics and Space Administration (NASA). 2005. Goddard Flight Center. Methane's Impacts on Climate Change May Be Twice Previous Estimates, July, 18, 2005. Available at: <http://www.nasa.gov/centers/goddard/news/topstory/2005/methane.html>. Accessed December 2008.
- National Climatic Data Center 2007. 2006 Annual Climate Review U.S. Available at: <http://www.ncdc.noaa.gov/oa/climate/research/2006/ann/us-summary.html>. Accessed December 2008.
- Sovacool, Benjamin K., 2008, Valuing the greenhouse gas emissions from nuclear power: A critical survey. Energy Policy Available at journal homepage: <http://www.elsevier.com/locate/enpol>
- The European Atomic Forum, 2008, Nuclear Energy and Greenhouse Gas Emissions Avoidance in the European Union, Issue No. 21 Summer, July 2008. Available at: <http://www.euronuclear.org/e-news/e-news-21/greenhouse-gas-emissions.htm>
- U.S. Department of Energy. 2007. Uranium Leasing Program Final Programmatic Environmental Assessment. Office of Legacy Management. DOE/EA-1535. July 2007.
- U.S. Fish and Wildlife Service (USFWS). 2007. Endangered species list for San Juan County, Utah. Available at: <http://www.fws.gov/mountain-prairie/ut.html/>. Accessed June 2008. U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages; Utah Department of Workforce Services
- Utah Conservation Data Center (UCDC) 2008. State of Utah Natural Resources. UCDC Home Page. Available at: <http://dwrcdc.nr.utah.gov/ucdc/default.asp>. Accessed June 2008.

Utah Department of Environmental Quality (DEQ). 2009. Division of Radiation Control – Administrative Rules on Radiation Control. Available at: <http://www.radiationcontrol.utah.gov/Rules/index.htm>. Accessed February 2009.

Utah Geological Survey. 2014. Utah Energy and Mineral Statistics Chapter 8: Greenhouse Gas Emissions. Utah Geological Survey. January 8, 2014. Accessed online at <http://geology.utah.gov/emp/energydata/index.htm>